

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  de Sauvage <i>et al.</i>  Serial No.: not assigned  Filed: herewith  For: <i>Patched-2 Antibodies</i>	Group Art Unit: not assigned  Examiner: not assigned
<p align="center"><b>CERTIFICATION UNDER 37 CFR 1.10</b></p> <p>EV 016026972 US: Express Mail Number          November 20, 2001: Date of Deposit</p> <p>I hereby certify that this Non-provisional Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Box Patent Application, U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, Virginia 22202.</p> <p><i>Glory L. Tapuena</i>          Glory L. Tapuena       </p>	

**INFORMATION DISCLOSURE STATEMENT**

Box PATENT APPLICATION  
 U.S. Patent and Trademark Office  
 P.O. Box 2327  
 Arlington, Virginia 22202

Sir:

Applicants submit herewith patents, publications or other information (attached hereto and listed on the attached revised Form PTO-1449) of which they are aware, which they believe may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56.

This Information Disclosure Statement is filed in accordance with the provisions of:

☒ **37 CFR §1.97(b)**

- within three months of the filing date of the application other than a continued prosecution application under 37 CFR §1.53(d); or
- within three months of the date of entry of the national stage of a PCT application as set forth in 37 CFR §1.491, or
- before the mailing of the first Office action on the merits; or
- before the mailing of the first Office action after the filing of a request for a continued examination under 37 CFR §1.114.

☐ **37 CFR §1.97(c)**

- by the Applicants after the period specified in 37 CFR §1.97(b), but prior to the mailing date of any of a final action under 37 CFR §1.113, or a notice of allowance under 37 CFR

§1.311, or an action that otherwise closes prosecution in the application, and is accompanied by either the fee set forth in 37 CFR §1.17(p) or a statement as specified in 37 CFR §1.97(e), as checked below.

☐ **37 CFR §1.97(d)**

- after the period specified in 37 CFR §1.97(c), and is accompanied by the fee set forth in 37 CFR §1.17(p) and a statement as specified in 37 CFR §1.97(e), as checked below.

[If either of boxes 37 CFR §1.97(c) or 37 CFR §1.97(d) is checked above, the following statement under 37 CFR §1.97(e) may need to be completed.]

- ☐ **37 CFR §1.97(e)** Each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement.
- ☐ **37 CFR §1.704(d)** Each item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application and the communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of this information disclosure statement. Therefore, in accordance with the provisions of 37 CFR §1.704(d), the filing of this information disclosure statement will not be considered a failure to engage in reasonable efforts to conclude prosecution under 37 CFR §1.704.
- ☐ The U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 07-0630 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement under 37 CFR §1.17(p). Any deficiency or overpayment should be charged or credited to this deposit account.

A list of the patent(s) or publication(s) is set forth on the attached revised Form PTO-1449 (Modified).

A copy of the items on PTO-1449 is supplied herewith.

Those patent(s) or publication(s) which are marked with an asterisk (\*) in the attached PTO-1449 form are not supplied because they were previously cited by or submitted to the Office in a prior application Serial No. 09/293,505, filed April 15, 1999 and relied upon in this application for an earlier filing date under 35 USC §120.

☐ **BLAST results enclosed:**

The undersigned also wishes to bring to the attention of the Examiner BLAST results of computerized alignments of the against sequences contained in the nucleotide and protein databases. The BLAST results are provided in paper form and are identified as reference "BLAST Results A-1- A-()" (nucleotide) and "BLAST Results B-1 - B-()" (protein) on the PTO Form 1449. Applicant requests that these references also be considered and that the Form 1449 be initialed to indicate the Examiner's consideration of the references.

A concise explanation of relevance of the items listed on PTO-1449 is:

☒ not given

☐ given for each listed item

☐ given for only non-English language listed item(s) [Required]

☐ in the form of an English language copy of a Search Report from a foreign patent office, issued in a counterpart application, which refers to the relevant portions of the references.

In accordance with 37 CFR §1.97(g), the filing of this information disclosure statement shall not be construed as a representation that a search has been made.

In accordance with 37 CFR §1.97(h), the filing of this information disclosure statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 CFR § 1.56(b).

In the event that the Office determines a fee to be due where none is specifically authorized in this paper, the U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 07-0630 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement under 37 CFR §1.17(p).

Respectfully submitted,

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Date: November 20, 2001



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PATENT TRADEMARK OFFICE

FORM PTO-1449

U.S. Dept. of Commerce  
Patent and Trademark Office

Atty Docket No.

P1405R1C1

Serial No.

not assigned

## LIST OF DISCLOSURES CITED BY APPLICANT

(Use several sheets if necessary)

Applicant

de Sauvage et al.

Filing Date

20 Nov 2001

Group

1

## U.S. PATENT DOCUMENTS

Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date
	* 1	09/031,563		Zhang et al.			26.02.98
	* 2	4,816,567	28.03.89	Cabilly et al.			
	* 3	5,225,539	06.07.93	Winter, G.			

## FOREIGN PATENT DOCUMENTS

Examiner Initials		Document Number	Date	Country	Class	Subclass	Translation Yes	No
	* 4	EP 0 879 888	25.11.98	EPO				
	* 5	WO 95/18856	13.07.95	PCT				
	* 6	WO 96/11260	18.04.96	PCT				
	* 7	WO 97/45541	04.12.97	PCT				
	* 8	WO 99/29854	17.06.99	PCT				

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)

	* 9	Alcedo et al., "The Drosophila smoothened Gene Encodes a Seven-Pass Membrane Protein, a Putative Receptor for the Hedgehog Signal" <u>Cell</u> 86:221-232 (1996)					
	*10	Apelqvist et al., "Sonic hedgehog directs specialised mesoderm differentiation in the intestine and pancreas" <u>Current Biology</u> 7(10):801-804 (Oct 1, 1997)					
	*11	Bellusci et al., "Involvement of Sonic hedgehog (Shh) in mouse embryonic lung growth and morphogenesis" <u>Development</u> 124(1):53-63 (Jan 1997)					
	*12	Bitgood et al., "Hedgehog and Bmp genes are coexpressed at many diverse sites of cell-cell interaction in the mouse embryo" <u>Developmental Biology</u> 172(1):126-138 (Nov 1995)					
	*13	Bitgood et al., "Sertoli Cell Signaling by Desert Hedgehog Regulates the Male Germline" <u>Current Biology</u> 6(3):298-304 (1996)					
	*14	Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions" <u>Science</u> 247:1306-1310 (1990)					
	*15	Carpenter, D. et al., "Characterization of two patched receptors for the vertebrate hedgehog protein family" <u>Proc. Natl. Acad. Sci. USA</u> 95(23):13630-13634 (1998)					
	*16	Chen and Struhl, "Dual roles for patched in sequestering and transducing Hedgehog" <u>Cell</u> 87(3):553-563 (Nov 1, 1996)					
	*17	Echelard et al., "Sonic hedgehog, a member of a family of putative signaling molecules, is implicated in the regulation of CNS polarity" <u>Cell</u> 75:1417-1430 (1993)					
	*18	Ericson et al., "Sonic hedgehog induces the differentiation of ventral forebrain neurons: a common signal for ventral patterning within the neural tube" <u>Cell</u> 81(5):747-756 (Jun 2, 1995)					
	*19	Fan et al., "Patterning of mammalian somites by surface ectoderm and notochord: evidence for sclerotome induction by a hedgehog homolog" <u>Cell</u> 79(7):1175-1186 (Dec 30, 1994)					
	*20	Fujiwara et al. (GenBank Accession No. D60589) (May 21, 1996)					
	*21	Gallani et al., "The role of the human homologue of Drosophila patched in sporadic basal cell carcinomas" <u>Nature Genetics</u> 14:78-81 (Sept. 1996)					

Examiner

Date Considered

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449		U.S. Dept. of Commerce Patent and Trademark Office		Atty Docket No. P1405R1C1	Serial No. not assigned
LIST OF DISCLOSURES CITED BY APPLICANT (Use several sheets if necessary)				Applicant de Sauvage et al.	
				Filing Date 20 Nov 2001	Group 1
OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)					
	*22	Goodrich et al., "Conservation of the hedgehog/patched signaling pathway from flies to mice: induction of a mouse patched gene by Hedgehog" <u>Genes Dev.</u> 10(3):301-312 (1996)			
	*23	Hahn et al., "Mutations of the Human Homolog of Drosophila Patched in the Nevroid Basal Cell Carcinoma Syndrome" <u>Cell</u> 85:841-851 (1996)			
	*24	Hynes et al., "Control of cell pattern in the neural tube by the zinc finger transcription factor and oncogene Gli-1" <u>Neuron</u> 19(1):15-26 (Jul 1997)			
	*25	Johnson et al., "Ectopic expression of Sonic hedgehog alters dorsal-ventral patterning of somites" <u>Cell</u> 79:1165-1173 (1994)			
	*26	Johnson et al., "Human Homolog of Patched, a Candidate Gene for the Basal Cell Nevus Syndrome" <u>Science</u> 272:1668-1671 (1996)			
	*27	Jones, P.T. et al., "Replacing the Complementarity-determining Regions in a Human Antibody with Those From a Mouse" <u>Nature</u> 321:522-525 (May 29, 1986)			
	*28	Krauss et al., "A functionally conserved homolog of the Drosophila segment polarity gene hh is expressed in tissues with polarizing activity in zebrafish embryos" <u>Cell</u> 75:1431-1444 (1993)			
	*29	Laufer et al., "Sonic hedgehog and Fgf-4 act through a signaling cascade and feedback loop to integrate growth and patterning of the developing limb bud" <u>Cell</u> 79(6):993-1003 (Dec 16, 1994)			
	*30	Marigo et al., "Biochemical evidence that patched is the Hedgehog receptor" <u>Nature</u> 384(6605):176-179 (Nov 14, 1996)			
	*31	Marigo et al., "Conservation in hedgehog signaling: induction of a chicken patched homolog by Sonic hedgehog in the developing limb" <u>Development</u> 122:1225-1233 (1996)			
	*32	Marti et al., "Requirement of 19K form of Sonic hedgehog for induction of distinct ventral cell types in CNS explants" <u>Nature</u> 375(6529):322-325 (May 25, 1995)			
	*33	Morrison et al., "Chimeric Human Antibody Molecules: Mouse Antigen-binding Domains with Human Constant Region Domains" <u>Proc. Natl. Acad. Sci. USA</u> 81:6851-6855 (November 1984)			
	*34	Motoyama et al., "Ptch2, a second mouse Patched gene is co-expressed with Sonic hedgehog" <u>Nature Genetics</u> 18(2):104-106 (Feb 1998)			
	*35	Nakano et al., "A protein with several possible membrane-spanning domains encoded by the Drosophila segment polarity gene patched" <u>Nature</u> 341:508-513 (1989)			
	*36	Ngo et al., "The Protein Folding Problem and Tertiary Structure" pps. 492-495			
	*37	Nusslein-Volhard et al., "Mutations Affecting the Pattern of the Larval Cuticle in Drosophila Melanogaster" <u>Roux's Archives of Developmental Biology</u> 193(5):267-282 (1984)			
	*38	Oro et al., "Basal cell carcinomas in mice overexpressing sonic hedgehog" <u>Science</u> 276(5313):817-821 (May 2, 1997)			
	*39	Perrimon, N., "Hedgehog and Beyond" <u>Cell</u> 80:517-520 (1995)			
	*40	Presta, L., "Antibody Engineering" <u>Curr. Op. Struct. Biol.</u> 2:593-596 (1992)			
	*41	Rassoulzadegan et al., "Transmeiotic differentiation of male germ cells in culture" <u>Cell</u> 75(5):997-1006 (Dec 3, 1993)			
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<b>OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)</b>					
*42	Riddle et al., "Sonic hedgehog mediates the polarizing activity of the ZPA" <u>Cell</u> 75:1401-1416 (1993)				
*43	Riechmann, L. et al., "Reshaping Human Antibodies for Therapy." <u>Nature</u> 332:323-329 (Mar 24, 1988)				
*44	Roberts et al., "Sonic hedgehog is an endodermal signal inducing Bmp-4 and Hox genes during induction and regionalization of the chick hindgut" <u>Development</u> 121:3163-3174 (1995)				
*45	Stone et al., "The tumour-suppressor gene patched encodes a candidate receptor for Sonic hedgehog" <u>Nature</u> 384(14):129-134 (Nov 1996)				
*46	Summersgill et al., "Molecular cytogenetic analysis of adult testicular germ cell tumours and identification of regions of consensus copy number change" <u>British Journal of Cancer</u> 77(2):305-313 (1998)				
*47	Symth et al. <u>Human Molecular Genetics</u> 8(2):291-297 (1999)				
*48	Takabatake, T. et al., "Hedgehog and patched gene expression in adult ocular tissues" <u>FEBS Letters</u> 410:485-489 (1997)				
*49	Vortkamp et al., "Regulation of rate of cartilage differentiation by Indian hedgehog and PTH-related protein" <u>Science</u> 273:613-622 (1996)				
*50	Wallis, G., "Bone growth: Coordinating chondrocyte differentiation" <u>Current Biology</u> 6(12):1577-1580 (1996)				
*51	Wicking and Bale, "Molecular basis of the nevoid basal cell carcinoma syndrome" <u>Current Opinion in Pediatrics</u> 9:630-635 (1997)				
*52	Xie et al., "Activating Smoothed mutations in sporadic basal-cell carcinoma" <u>Nature</u> 391(6662):90-92 (Jan 1, 1998)				
*53	Xie et al., "Mutations of the PATCHED gene in several types of sporadic extracutaneous tumors" <u>Cancer Research</u> 57(12):2369-2372 (Jun 15, 1997)				
*54	Zaphiropoulos, P.G. et al., "PTCH2, a novel human patched gene undergoing alternative splicing and up-regulated in basal cell carcinomas" <u>Cancer Research</u> 59:787-792 (1999)				
*55	de Jong et al., "Pathogenesis of adult testicular germ cell tumors. A cytogenetic model" <u>Cancer Genetics &amp; Cytogenetics</u> 48(2):143-167 (Sep 1990)				
*56	van den Heuvel and Ingham, "Smoothed Encodes a Receptor-Like Serpentine Protein Required for Hedgehog Signalling" <u>Nature</u> 382:547-551 (1996)				
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*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.					